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(54) Title: THIOPHENE AND BENZOTHIOPHENE HYDROXAMIC ACID DERIVATIVES

(57) Abstract: The present invention relates to a novel class of hydroxamic acid derivatives having a benzothiophene or thiophene backbone. The hydroxamic acid compounds can be used to treat cancer. The hydroxamic acid compounds can also inhibit historic deacetylase and are suitable for use in selectively inducing terminal differentiation, and arresting cell growth and/or apoptosis of neoplastic cells, thereby inhibiting proliferation of such cells. Thus, the compounds of the present invention are useful in treating a patient having a tumor characterized by proliferation of neoplastic cells. The compounds of the invention are also useful in the prevention and treatment of TRX-mediated diseases, such as autoimmune, allergic and inflammatory diseases, and in the prevention and/or treatment of diseases of the central nervous system (CNS), such as neurodegenerative diseases, The present invention further provides pharmaceutical compositions comprising the hydroxamic acid derivatives and safe dosing regimens of these pharmaceutical compositions, which are easy to follow, and which result in a therapeutically effective amount of the hydroxamic acid derivatives *in vivo*.

WO 2005/034880 A3